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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,790	10/27/2003	Po-Wen Ku	MTKP0091USA	2789
27765 7590 05/16/2007 NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			EXAMINER HUNG, STEPHEN C	
			ART UNIT 2615	PAPER NUMBER
			NOTIFICATION DATE 05/16/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

Application No.

10/605,790

Applicant(s)

KU, PO-WEN

Examiner

Stephen C. Hung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 7-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of claims 1-6 in the reply filed on 3/26/2007 is acknowledged. The traversal is on the ground(s) that invention I (claims 1-6) and invention II (claims 7-14) are not found as patentably distinct inventions. This is not found persuasive because:
2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the digital signal processor can be used to practice another process besides volume adjustment, such as a process for video compression, speech processing, or audio sound effects.

The requirement is still deemed proper and is therefore made FINAL.

### *Drawings*

3. The drawings are objected to because Figure 2, step 190 shows the instruction --- Set Vol<sub>now</sub> = Vol<sub>step</sub> ---. However, this should instead read "Set Vol<sub>now</sub> = Vol<sub>dest</sub>."

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version

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of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 1, 2, and 6** are rejected under 35 U.S.C. 102(e) as being anticipated by **Lau (US 6,535,611 B1)**.

Consider **claim 1**, Lau teaches a method of changing the audible volume level of a digital signal (Figure 5) comprising:

providing a destination volume value ("VOL<sub>f</sub>" column 6, line 26) to a DSP (Figure 2, logic 71); and with the DSP, gradually incrementing the volume level ("increasing the volume," column 6, line 26) of the digital signal to the destination volume value within a predetermined time period ("clock cycle," column 6, lines 28-29);

whereby any destination volume ("VOL<sub>f</sub>" column 6, line 26) designated by the destination volume value is achieved in the digital signal in the same amount of time ("clock cycle," column 6, lines 28-29).

Consider **claim 2**, Lau teaches the method of claim 1 wherein the incrementing step further comprises: gradually incrementing the digital signal ("gradually changing the signal volume level," column 5, lines 61-62) within a predetermined sample number ("sample\_size," column 6, line 18) corresponding to the predetermined time period ("clock cycle," column 6, lines 28-29).

Consider **claim 6**, Lau teaches the method of claim 2 wherein the predetermined sample number ("sample\_size," column 6, line 18) is user-selectable ("These parameter values are stored in a suitable buffer of the volume control circuit, and in some embodiments are user-selectable," column 6, lines 20-23).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 3 and 4** rejected under 35 U.S.C. 103(a) as being unpatentable over **Lau (US 6,535,611 B1)** in view of **Andersen et al. (4,550,425)**.

Consider **claim 3**, Lau teaches the method of claim 2 wherein the incrementing step further comprises:

subtracting the current volume value of the digital signal from the destination volume value (" $VOL_{diff} = VOL_f - VOL_{OUT}$ ," column 6, lines 37);

a volume step (" $vol\_step$ ," column 6, lines 16);

incrementing the output signal by the volume step in a continuous fashion until the volume destination is reached (Figure 5, step 45).

Although Lau teaches a volume step, Lau only identifies a volume step, but does not specify how that variable is calculated. Lau does not explicitly teach dividing the result

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from the subtracting step by the predetermined sample number to obtain a volume step;

In the same field of endeavor, Andersen et al. teaches a similar formula used to calculate an increment step variable ("Range Increment =  $\frac{\text{MAX} - \text{MIN}}{16}$ " Figure 4).

Therefore, since Lau does not specify how the volume step is calculated, it would have been obvious to one of ordinary skill in the art at the time of the invention to divide the difference between the destination and current volume by the sample number, in a similar manner taught by Andersen, in order "to calculate a scale factor" (Andersen, abstract).

Consider **claim 4**, the modified method of Lau teaches the method of claim 3 wherein the result from the subtracting step is a positive number (Lau, "If the desired volume difference is greater than the maximum number of volume level increments," column 6, lines 46-47).

8. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Lau (US 6,535,611 B1)** in view of **Andersen et al. (4,550,425)** as applied to claim 3 above, and further in view of **Jubien et al. (6,868,162 B1)**.

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Consider **claim 5**, the modified method of Lau teaches the method of claim 3, and the step of subtracting the current volume from the destination volume.

However, Lau does not specify wherein the result from the subtracting step is a negative number.

In the same field of endeavor, Jubien et al. teaches a method and apparatus for automatic volume control in an audio system. In the apparatus in Figure 4, Lau teaches various slide controls (402, 404, 406, 408). These slide controls are configured to the dB scale system, whereby -60 dB designates the lowest volume setting, while 0 dB designates the loudest volume setting.

When one uses the dB scale with 0 dB at the highest volume level, then the difference between the current volume and the destination volume levels will be a negative number.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to configure the volume scale of the modified method of Lau to the dB scale system with 0 dB as the reference level, in a similar manner taught by Jubien, because "0 dB represents the maximum volume that the player can handle without clipping" and "a dB volume scale is used in just about all professional audio equipment



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and a fair amount of consumer audio equipment as well”

(<http://www.misticriver.net/archive/index.php/t-36224.html>).

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. **Alonso (4,726,067)** teaches a method of and apparatus for extending the useful dynamic range of digital-audio systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen C. Hung whose telephone number is (571)270-1457. The examiner can normally be reached on M-Th 7:30am-5pm, Every other Friday 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571)272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

S.H.



4/13/2007

  
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SUPERVISORY PATENT EXAMINER